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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/534,335	05/10/2005	Hideomi Sakuma	2271/74410	2921

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NEW YORK, NY 10036

EXAMINER

LEGESSE, HENOK D

ART UNIT	PAPER NUMBER
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2861

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05/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/534,335

Applicant(s)

SAKUMA ET AL.

Examiner

Henok Legesse

Art Unit

2861

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 05/10/2005.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1,2, 13, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Kitahara et al. (US 2002/0018097 A1).

Regarding claims 1 and 13, Kitahara et al teaches an inkjet recording device, image forming apparatus, (printer 10, fig.1), comprising:

a conveyance belt (51, fig.9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) (fig.9; paragraph 0122, line 1) while rolling, said conveyance belt (51) being charged (charged by charger 55 in fig.9) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a recording unit (print head 3, fig. 1) configured to eject ink onto the recording medium (28) on the conveyance belt (18) (see paragraph 0075); and

a guide unit (74, fig.16) arranged on the inner side of the conveyance belt (71) facing the recording unit (75) between two of the rollers (72 and 73), the guide unit (74) being arranged to push a portion of the conveyance belt (71) so that the pushed portion of the conveyance belt approaches the recording unit (75) (see paragraph 147).

Regarding claim 2, Kitahara et al teaches the upper face of said guide unit (74, fig.16) is higher than the upper tangent line of two of the plurality of rollers (72 and 73) (see fig.16; paragraph 0148).

Regarding claim 16, Kitahara et al teaches a sheet conveyance device (paper transportation system) (50A,fig. 9 and 50G, fig. 16), comprising:

a conveyance belt (51, fig.9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55 in fig.9) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9); and

a guide unit (74, fig.16) arranged on the inner side of the conveyance belt (71) between two of the rollers (72 and 73), said guide unit (74) being arranged to push a portion of the conveyance belt (71) from the inner side of the conveyance belt to outside of the conveyance belt so that the pushed portion of the conveyance belt is projected (see fig. 16 the part of belt 71 that is in contact with guide unit 74 is projected outwardly towards print head 75. See paragraph 147).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

6. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al in view of Matsumoto (US 2002/0021312 A1).

Regarding claim 3, Kitahara et al teaches all the limitations claimed in claim 1 (see the rejection of claim 1 under 102 (b) above).

Kitahara et al further teaches a guide unit (74") (fig. 20 and fig. 21) includes a plurality of projecting stripes (see fig. 20 and 21; there are projecting stripes between grooves 74a") on a surface of the guide unit (74") in contact with the

conveyance belt (71") (fig. 20 and fig. 21), said projecting stripes being arranged in a direction (Do) (fig. 20) parallel to a rolling direction of the conveyance belt (Do) (fig. 20).

Kitahara et al fails to teach the projecting stripes being arranged in a direction perpendicular to a rolling direction of the conveyance belt.

Matsumoto teaches a guide unit (30, fig.1) includes a plurality of projecting stripes (37) on a surface of the guide unit (30) in contact with the conveyance belt (31) (fig. 1), said projecting stripes (37) being arranged in a direction perpendicular to a rolling direction of the conveyance belt.

Since both Kitahara et al and Matsumoto teach recording mediums transportation system, it would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the stripes of Kitahara et al in a direction perpendicular to a rolling direction of the conveyance belt of Kitahara et al as taught by Matsumoto in order to provide a conveying apparatus that can suppress vibration of a conveying belt during conveyance (see paragraph 72).

Regarding claim 4, Kitahara et al as modified by Matsumoto teaches all the limitations claimed in claim 3 (see the rejection of claim 3 under 103 (a) above).

Kitahara et al as modified by Matsumoto discloses the claimed invention, the top surface of the projecting stripes 37 has a predetermined width (see paragraph 109 of Matsumoto), except for the width of each of the projecting stripes is substantially less than or equal to 5 mm. It would have been obvious to one having ordinary skill in the art at the time the invention was made to make the width of each of the projecting stripes

substantially less than or equal to 5 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable range involves only routine skill in the art. In re Aller, 105 USPQ 233.

7. Claims 9-11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al.

Regarding claims 9 and 10, Kitahara et al. first embodiment teaches all the limitations claimed in claim 1 (see the rejection of claim 1 under 102 (b) above).

Kitahara et al. first embodiment fails to teach a separation unit arranged on a downstream side relative to the pushed portion for separating the recording medium from the conveyance belt after recording.

Kitahara et al nineteenth embodiment teaches a separation unit [claw 367 and claw 367 driving means, not shown, under the control of CPU 1 not shown in fig.52] (fig. 52; paragraphs 0343 and 0348) arranged on a downstream side relative to the pushed portion (see fig. 52, element 367, indicated by solid line, is arranged on a downstream side of head 355 along direction D7 of belt 354 pressing belt 354 against roller 353. Note also element 367 is arranged below a plane defined by rollers 353 and 352) for separating the recording medium [28] (fig.52) from the conveyance belt [354] (fig.52) after recording (paragraph 0344, note that in this paragraph there appears to be an error in the figure number, Fig.51 should be replaced with Fig. 52 in line 3 of this paragraph).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the separation unit of the nineteenth embodiment of Kitahara et al in the inkjet recording device of the first embodiment of Kitahara et al in order to separate and guide the recording medium from the belt after recording.

Regarding claim 11, Kitahara et al further teaches the separation claw (367, fig.52) is arranged to be contactable to and separatable from a surface of the conveyance belt (354, fig.52) [See fig.52 and paragraphs 0343-0349, element 367 can be driven in a forward-direction guide position as shown by solid line and opposite-direction guide position as shown by dashed line under the control of CPU 1 not shown in fig.52, see fig.1, in order to make possible to print on both surfaces of a recording medium].

Regarding claim 12, Kitahara et al paper transportation system 50 G teaches a guide unit (74, fig.16) arranged on the inner side of the conveyance belt (71).

Kitahara et al paper transportation system 50 G does not show a guide roller arranged on the inner side of and in contact with the conveyance belt at one of the ends of the guide unit along the rolling direction of the conveyance belt.

However, Kitahara et al paper transportation system 50 K teaches a guide roller (78,79) (fig.22) arranged on the inner side of and in contact with the conveyance belt (71).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the guide rollers of paper transportation system 50 K on the ends of the guide unit of paper transportation system 50 G along the rolling direction of the conveyance belt the motivation being the guide rollers suppresses the pitching of the transportation belt and also smoothen the transition of the belt portion going in and out of the guide unit during recording (paragraph 0162).

8. Claims 5-7, 14-15, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al (US 2002/0018097 A1) in view of Ishii et al (US 2003/0085978 A1).

Regarding claims 5 and 14, Kitahara et al teaches an inkjet recording device, image forming apparatus, (printer 10, fig.1), comprising:

a conveyance belt (51, fig.9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a recording unit (print head 3, fig. 1) configured to eject ink onto the recording medium (28) on the conveyance belt (18) (see paragraph 0075);

a guide unit (74, fig.16) arranged on the inner side of the conveyance belt (71) facing the recording unit (75) between two of the rollers (72 and 73) (paragraph 0147).

Kitahara et al fails to teach a delivering rollers arranged to carry the recording medium conveyed by (from) the conveyance belt after recording so as to further convey the recording medium, a height where said delivering rollers carry the recording medium being lower than the height of an (the) upper face of said guide unit in contact with the conveyance belt.

However, Ishii et al teaches a delivering rollers (154,153) (fig.3) arranged to carry the recording medium (L) (fig.3) after recording so as to further convey the recording medium, a height where said delivering rollers (154,153) carry the recording medium being lower than the height of an (the) upper face of said guide unit (125) (fig.3) enables to prevent the growth of cockling of the recording medium during the transportation of the recording medium after recording.

Therefore, since both Kitahara et al and Ishii et al teach transportation of recording mediums, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the delivering rollers of Ishii et al in the recording device of Kitahara et al in such a way that the delivering rollers [154,153 of Ishii et al] arranged to carry the recording medium [28 of Kitahara et al] conveyed by (from) the conveyance belt [71 of Kitahara et al fig.16] after recording so as to further convey the recording medium (i.e. the delivering rollers are installed near the roller 73 in fig.16 of Kitahara et al), a height where said delivering rollers carry the recording medium being lower than the height of an upper face of said guide unit [74 of Kitahara et al fig.16] in contact with the conveyance belt. The motivation for this arrangement is to prevent the growth of cockling on the recording medium during transporting the

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medium after recording as suggested by Ishii et al (see paragraph 0009, fig.3 and the corresponding text of Ishii et al).

Regarding claims 6 and 15, Ishii et al further teaches a conveying roller [152] (fig.1) in contact with a driver roller [151] (fig.1) to convey the recording medium to the recording unit [231] (fig.1), a height where said conveying roller [152] carries the recording medium being lower than the height of the upper face of said guide unit [122](fig.1).

Regarding claim 7, Kitahara et al nineteenth embodiment teaches the height where the conveying roller (361, fig.52) carries the recording medium (28) is higher than the height where said delivering rollers (364) (fig.52; when paper 28 is transported in the direction of D7) carry the recording medium (28).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to arrange the conveying roller and delivering rollers of the recording device of Kitahara et al as modified by Ishii et al in such away that the conveying roller is located at a height higher than the delivering rollers as is shown in fig.52 of Kitahara et al. The reason being such arrangement allows to have efficient way of arranging paper trays especially for a printer that prints on both surfaces of a paper. Another reason could be since cockle growth is moisture dependent such arrangement gives more space for the printed paper before getting to the discharge tray thereby allowing more time for cockle growth to subside.

Regarding claim 17, Kitahara et al teaches a sheet conveyance device (paper transportation system) (50A, fig. 9, and 50G, fig. 16), comprising:

a conveyance belt (51, fig. 9) tensioned on a plurality of rollers (52 and 53) for conveying a recording medium (28) while rolling, said conveyance belt (51) being charged (charged by charger 55) to hold the recording medium thereon for conveyance (paragraph 0119, lines 10-13; paragraph 0121, lines 6-9);

a guide unit (74, fig. 16) arranged on the inner side of the conveyance belt (71) facing the recording unit (75) between two of the rollers (72 and 73) (paragraph 0147);
and

Kitahara et al fails to teach a delivering rollers arranged to carry the recording medium conveyed from the conveyance belt after recording so as to further convey the recording medium, a height where said delivering rollers carry the recording medium being lower than the height of the upper face of said guide unit in contact with the conveyance belt.

However, Ishii et al teaches a delivering rollers (152 and 153) (fig. 3) arranged to carry the recording medium (L) after recording so as to further convey the recording medium, a height where said delivering rollers (152 and 153) carry the recording medium being lower than the height of the upper face of said guide unit (125) enables to prevent the growth of cockling of the recording medium during the transportation of the recording medium after recording.

Since both Kitahara et al and Ishii et al teach transportation of recording mediums, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the delivering rollers of Ishii et al in the recording device of Kitahara et al in such a way that the delivering rollers [154,153 of Ishii et al] arranged to carry the recording medium [28 of Kitahara et al] conveyed from the conveyance belt [71 of Kitahara et al fig.16] after recording (i.e. the delivering rollers are installed near the roller 73 in fig.16 of Kitahara et al) so as to further convey the recording medium, a height where said delivering rollers carry the recording medium being lower than the height of the upper face of said guide unit [74 of Kitahara et al fig.16] in contact with the conveyance belt. The motivation for this arrangement is to prevent the growth of cockling on the recording medium during transporting the medium after recording as suggested by Ishii et al (see paragraph 0009, fig.3 and the corresponding text of Ishii et al).

Regarding claim 18, Kitahara et al as modified by Ishii et al teaches all limitations claimed in claim 17 (see the rejection of claim 17 under 103(a) above).

Kitahara et al as modified by Ishii et al above fails to teach a conveying roller arranged in contact with one of the rollers tensioning the conveyance belt to convey the recording medium to the recording unit, a height where said conveying roller carries the recording medium being lower than the height of the upper face of said guide unit in contact with the conveyance belt.

However, Ishii et al teaches a conveying roller (152) (fig.1) in contact with a driver roller (151) to convey the recording medium to the recording unit (231), a height where said conveying roller (152) carries the recording medium being lower than the height of the upper face of said guide unit (122).

Since both Kitahara et al and Ishii et al teach recording medium transportation systems, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the conveying roller of Ishii et al in the recording device of Kitahara et al in such a way that conveying roller [152 of Ishii et al] arranged in contact with one of the rollers tensioning [72 of Kitahara et al fig.16] the conveyance belt [71 of Kitahara et al fig.16] to convey the recording medium to the recording unit [75 of Kitahara et al fig.16], a height where said conveying roller [152] carries the recording medium being lower than the height of the upper face of said guide unit [74 of Kitahara et al fig.16] in contact with the conveyance belt [71 of Kitahara et al fig.16]. One of the motivation is roller 72 of Kitahara et al (fig.16) drives the conveying roller, resulting in fewer parts that means lower cost of production. The other motivation for such an arrangement is to prevent the growth of cockling on the recording medium as the recording medium is transported towards the recording head by stretching the recording medium along the nearly convex shaped path towards the recording head (see paragraph 0009, fig.1 and the corresponding text of Ishii et al).

9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kitahara et al as modified by Ishii et al and further in view of Richtsmeier et al. (US 5,467,119).

Kitahara et al as modified by Ishii et al teaches all limitations claimed in claim 7 (see the rejection of claim 7 under 103(a) above).

Kitahara et al fails to teach the recording medium is inverted before being carried by the conveying roller.

However, Richtsmeier et al teaches recording medium transportation system whose input tray is arranged in such a way that the recording medium (from input tray 58 in fig.1) is inverted before being carried by the conveying roller (64).

Since Kitahara et al, Ishii et al and Richtsmeier et al teach recording medium transportation system, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the input tray arrangement as taught by Richtsmeier et al in the device of Kitahara et al as modified by Ishii et al further modified by Kitahara et al nineteenth embodiment. The motivation is in such arrangement the input tray is below the recording head (not on the side) resulting in a more compact and economically sound recording device.

Relevant references: - US 6,786,590 - US 6,328,440 - US 6,224,203

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Henok Legesse whose telephone number is (571) 270-1615. The examiner can normally be reached on Mon - FRI, 7:30-5:00, ALT.FRI EST.TIME.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Luu can be reached on (571) 272-7663. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

*** H.L.
05/24/2007



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